UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IV
345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

Site: Carrier

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SUBJECT: Ground-Water Review of the Phase I RI for the Carrier Corporation NPL Site, Collierville, TN

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A ground-water review has been conducted of the Phase I RI Report for the Carrier Corporation NPL Site near Collierville, TN. This phase consisted of sampling and analysis of most of the existing ground-water monitoring wells and sampling and analysis of four soil borings. The proposed additional tasks planned for this site should be modified to fill data gaps which have become apparent. The focus of this review will be to identify data gaps and recommend upgrading the RI to fill these data gaps.

Preliminary Ground-Water Classification

A preliminary evaluation has been conducted for the surficial aquifer to determine its classification under the EPA ground-water classification system. This aquifer, the Memphis Sand, has been designated as a Class IIA aquifer, Current Source of Drinking Water due, in part, to the public water supply wells located northwest of the site. Aguifers with this classification are to be remediated to MCLs, MCLGs, or when these are not available, to health based standards approved by an EPA toxicologist.

General Comments

(1) The ground-water sampling from this phase and the historical information on the levels of TCE and DCE in the ground-water monitoring wells indicates that the plume has not been sufficiently defined. Both the horizontal and vertical extent of the plume will require additional wells to be fully delineated. For the horizontal directions additional wells are needed to the west, northwest, east and southeast of the site. For the vertical direction, the deepest wells at the following locations are contaminated: MW19, MW21, MW23, MW1, MW15, and MW4. (Also, the nearby municipal water supply wells of unknown depth are contaminated.

well Depths

(2) Soil samples have indicated high levels of one of the principal contaminants of concern at soil boring locations B38, B39, and B40.

The full extent of contamination in this locations should be determined with additional borings. Also, soil column testing should be conducted to establish partition coefficients so that soil clean-up goals can be established. An example of a work plan for soil column testing is included for reference at the end of this document.

(3) Because of the high levels of contamination in the aquifer at this site (TCE up to 4400 ug/l, DCE up to 5300 ug/l) and the ground-water classification, aquifer remediation in all likelihood will be required at this site. It will be necessary to establish site-specific information on the impact of the municipal water supply wells on altering the configuration of the water table and the aquifer properties at the site. If possible, it would be preferable to prevent the main part of the plume from reaching the municipal water supply wells. Aquifer testing utilizing pumping and observation wells should be considered for this site. If the municipal wells have had an aquifer test, the data from this test may suffice.

Specific Comments

(1) Many of the detection limits in the Ground-Water Analysis Summary in Appendix B are too high or inaccurate. Two examples will illustrate the problem. First, the detection limit for Benzene ranged from 1 ug/l to 140 ug/l. The MCL for benzene is set at 5 ug/l. The practical quanitation limit is set at 2 ug/l using Method 8020. At a minimum the detection limit should be equivalent to the MCL since this will be the ground-water clean-up goal. Second, the constituent 1,2-Dicholorethene is reported as total of all species. However, there is a proposed MCL of 70 ug/l for cis-1,2-Dichloroethene and 100 ug/l for trans-1,2-Dichloroethene. If values are reported as the total of all species, the clean-up goal will be set at 70 ug/l since in is possible that all the 1,2-Dichloroethene may actually be the cis-1,2-Dichloroethene isomer.

(2) Not all constituents in all monitoring wells were included in the analysis for this Phase I. For example, in monitoring well MW03 only metals and volatile organic compounds were included in the analysis. In contrast, MW1B also had an analyses of base neutral extractable, acid extractable, pesticides and cyanide.

(3) Not all wells were included in this round of sampling. Two wells of particular concern are MW19 and MW15. These wells both had high levels of TCE and DCE in previous sampling. Well MW19 is the ground-water monitoring well nearest to the municipal water supply wells. These wells need to have a full scan for all constituents of concern in the next round of sampling.

(4) Monitoring well construction was not included in this report. This information is needed to evaluate the information in the report. It is especially important to include screen depths for all wells where samples were taken, including the municipal wells, so that the distribution of contamination can be understood.

Recommendations

(1) Include additional monitoring wells in the next phase of the ground-water investigation to define the vertical and horizontal extent of the contamination plume.

(2) Conduct additional soil sampling to define the extent of soil contamination. Conduct soil column testing to establish partition coefficients for use in establishing soil clean-up goals.

(3) Conduct aquifer testing to establish the aquifer properties at the site or find the results of aquifer testing from the municipal water supply wells. Determine the impact of the municipal water supply wells on the ground-water flow in the area.

(4) Check all detection limits for constituents of concern to ensure that they are at proper levels. Also, another round of samples should be taken from the ground-water monitoring wells in which all constituents of concern were not included and the ground-water monitoring wells which were omitted from this sampling round so that a comprehensive set of samples can be collected.

(5) Include the monitoring well and municipal water supply well construction details in this and all future reports which discuss the contamination at the site.

Hopefully these comments will be helpful in your review of this site. If there are any questions please cointact me at x3866.